CLAIMS

What is claimed is:

1. A computer implemented method for calculating an importance rank for N linked nodes of a linked database, the method comprising the steps of:

(a) selecting an initial N-dimensional vector p_0;

(b) computing an approximation p_n to a steady-state probability p_∞ in accordance with the equation $p_n = A^n p_0$, where A is an NxN transition probability matrix having elements $A[i][j]$ representing a probability of moving from node i to node j; and

(c) determining a rank $r[k]$ for a node k from a kth component of p_n.

2. The method of claim 1 wherein the matrix A is chosen so that an importance rank of a node is calculated, in part, from a weighted sum of importance ranks of backlink nodes of the node.

3. The method of claim 2 wherein the importance ranks of each of the backlink nodes is weighted in dependence upon the total number of links in the backlink node.

4. The method of claim 1 wherein the matrix A is chosen so that an importance rank of a node is calculated, in part, from a constant α representing the probability that a surfer will randomly jump to the node.

5. The method of claim 1 wherein the matrix A is chosen so that an importance rank of a node is calculated, in part,

from a measure of distances between the node and backlink nodes of the node.

6. The method of claim 1 wherein the initial N-dimensional vector p_0 is selected to represent a uniform probability distribution.

7. The method of claim 1 wherein the initial N-dimensional vector p_0 is selected to represent a non-uniform probability distribution, wherein a predetermined set of nodes is given a relatively large initial probability.

8. A computer implemented method for assigning a rank to N nodes of a linked database, the method comprising calculating, for a node, a weighted sum of ranks of backlink nodes to the node, wherein each of the backlink nodes is weighted in dependence upon the total number of links in the backlink node.